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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,196	12/15/2003	Emanuel Beer	5640/C01/DISPLAY/AHRDWR/R	4347
41161	7590	05/18/2006		
DUGAN & DUGAN, PC 55 SOUTH BROADWAY TARRYTOWN, NY 10591			EXAMINER MOORE, KARLA A	
			ART UNIT	PAPER NUMBER

1763

DATE MAILED: 05/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/736,196	BEER ET AL.	
	Examiner	Art Unit	
	Karla Moore	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 7, 11-12 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,284,006 to Siefering et al. in view of U.S. Patent Publication No. 2003/0118966 to Tsutsui et al.

3. Siefering et al. disclose the invention substantially as claimed, in Figures 1 and 6, and comprising: an apparatus through which a substrate is transferred between a first vacuum chamber (18) and a second vacuum chamber (Figures 1 and 6, 78; column 4, rows 6-7, in a cluster tool the first vacuum chamber would be coupled to other process chambers via a vacuum transfer chamber), wherein the first vacuum chamber is maintained at a high temperature (for processing) relative to a temperature maintained within said second vacuum chamber (the adjacent chamber in a cluster tool as disclosed would be a transfer chamber, which is not held at as high of a temperature as a processing chamber), said second vacuum chamber including a port (84); said apparatus comprising a passageway for receiving said substrate (see Figures 1 and 6); and a thermally isolating interface (76) that reduces heat transfer from said first vacuum chamber to said second vacuum chamber, said thermally isolating interface allowing transfer of said substrate between said first vacuum chamber and said second vacuum chamber, said thermally isolating interface having a face with a border disposed on said face the border defining a hole (82) in said thermally isolating interface having dimensions such that said substrate is transferable through said thermally isolating interface; wherein said first vacuum chamber, said apparatus and said second vacuum chamber are sealed together to form a closed environment having an internal pressure that is less than standard atmospheric pressure.

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4. However, Siefering et al. fail to specifically teach said thermally isolating interface is made of a metal having a thermal conductivity coefficient of less than $1536 \text{ Btu inch/(hr)(ft}^2\text{)(deg F)}$.

5. Tsutsui et al. teach using a metal, such as stainless steel, having a thermal conductivity coefficient of less than about $1536 \text{ Btu inch/(hr)(ft}^2\text{)(deg F)}$ as a material for a thermal insulating component separating two chambers at differing processing temperatures for the purpose of reducing heat loss from a thermal treatment apparatus (Figures 5 and 6; abstract, paragraphs 103-107 and 154-155). Tsutsui et al. further teach providing recesses in a thermally isolating interface for the purpose of making a thermal conducting cross section smaller thus decreasing the amount of heat transmitted (Figure 3 and 4; paragraphs 94-101). With regards to the specific shape of the recesses, the courts have ruled that an express suggestion to substitute one equivalent component or process for another is not necessary to render such substitution obvious. In re Fout, 675 F.2d 297, 213 USPQ 532 (CCPA 1982). The courts have further held that selections of shape are a matter of choice which a person of ordinary skill in the art will find obvious absent persuasive evidence that the particular configuration of the claimed shape was significant. In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

6. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have used a metal having a thermal conductivity coefficient of less than about $1536 \text{ Btu inch/(hr)(ft}^2\text{)(deg F)}$ as a material for the thermally isolating interface in Siefering et al. in order to reduce heat loss from a thermal treatment apparatus as taught by Tsutsui et al. It would have also been obvious to have provided recesses in the thermally isolating interface in Siefering et al. in order to make a thermal conducting cross section smaller thus decreasing the amount of heat transmitted also as taught by Tsutsui et al.

7. With respect to claims 2 and 13, said first chamber is a heat chamber (for processing) and said second chamber is a transfer chamber (column 4, rows 1-11).

8. With respect to claims 3 and 4, as noted above, Tsutsui et al. teach the use of a stainless steel which is a metal having a thermal conductivity coefficient of less than $1536 \text{ Btu inch/(hr)(ft}^2\text{)(deg F)}$ and specifically about $106 \text{ Btu inch/(hr)(ft}^2\text{)(deg F)}$.

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9. With respect to claim 7, in Siefering et al., said passageway further comprises a heating element for maintaining said apparatus at a temperature that is proximate to said high temperature (column 5, rows 39-48).

10. With respect to claim 11, the substrate is a semiconductor substrate or a glass substrate (column 1, rows 16-21). However, Examiner notes that the courts have ruled that inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims. In re Young, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)).

11. The limitations of independent claims 12 and 15 are addressed above, as each of these claims are broader versions of independent claim 1, which is addressed above.

12. With respect to claims 16-18, as noted above, with regards to the specific shape of the recesses, the courts have ruled that an express suggestion to substitute one equivalent component or process for another is not necessary to render such substitution obvious. In re Fout, 675 F.2d 297, 213 USPQ 532 (CCPA 1982). The courts have further held that selections of shape are a matter of choice which a person of ordinary skill in the art will find obvious absent persuasive evidence that the particular configuration of the claimed shape was significant. In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

13. Claims 5-6 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siefering et al. and Tsutsui et al. as applied to claims 1-4, 7, 11-12 and 15-18 above, and further in view of U.S. Patent No. 3,866,926 to Traum

14. Siefering et al. and Tsutsui et al. disclose the invention substantially as claimed and as described above.

15. However, Siefering et al. and Tsutsui et al. fail to teach said thermally isolated volume occupied by air, which has a thermal conductivity coefficient of less than 1200 Btu inch/(hr)(ft²)(deg F).

16. Traum teaches providing recesses (Figure 2, 22-25, second recess means) in a thermal isolating interface and occupying the volume created with air for the purpose of defining heat insulating cavities

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between two members (abstract and column 3, rows 16-24 and 56-60). Essentially, Traum teaches that by configuring the isolating interface with recesses the contact area is diminished and heat transfer is reduced.

17. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided recesses with an air occupying volume in Siefering et al. and Tsutsui et al. in order to define heat insulating cavities as taught by Traum.

18. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siefering et al. and Tsutsui et al. as applied to claims 1-4, 7, 11-12 and 15-18 above, and further in view of U.S. Patent No. 4,531,047 to Canfield et al.

19. Siefering et al. and Tsutsui et al. disclose the invention substantially as claimed and as described above.

20. However, Siefering et al. and Tsutsui et al. fail to teach the passageway further comprising a heat distribution mechanism including a reflective surface, such as a parabolic mirror for distributing heat generated by said heating mechanism.

21. Canfield et al. disclose a heating element comprising a heater in a metal shape (12) for the purpose of mounting the heater; a coil (5) wrapped about a ceramic base (6a) for the purpose of supporting the coil (column 2, rows 53-59); and a reflective parabolic surface (Figure 6) for the purpose of distributing heat generated by said heating element (column 2, rows 53-59).

22. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided the heating element in Siefering et al. and Tsutsui et al. with a reflective, mirrored parabolic surface heating distribution mechanism in order to distribute heat generated, as taught by Canfield et al.

Response to Arguments

23. Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection. The combination of Siefering et al. and Tsutsui et al. better anticipates

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the claimed invention and therefore is applied against the pending claims. With respect to Applicant's arguments regarding motivation to combine, Examiner notes that each of the prior art references used above does indeed provide reasoning/motivation for incorporation of the features into an apparatus where thermal isolation is being addressed.

24. With respect to the use of Traum et al. against the claimed invention, Examiner notes in response to applicant's argument that the reference is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, as described above, they are both concerned with thermal isolation. Examiner also notes that the court have ruled that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Conclusion

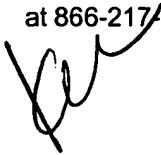
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 571.272.1440. The examiner can normally be reached on Monday-Friday, 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571.272.1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC)

at 866-217/9197 (toll-free).



Karla Moore
Primary Examiner
Art Unit 1763
15 May 2006